

FIG.1

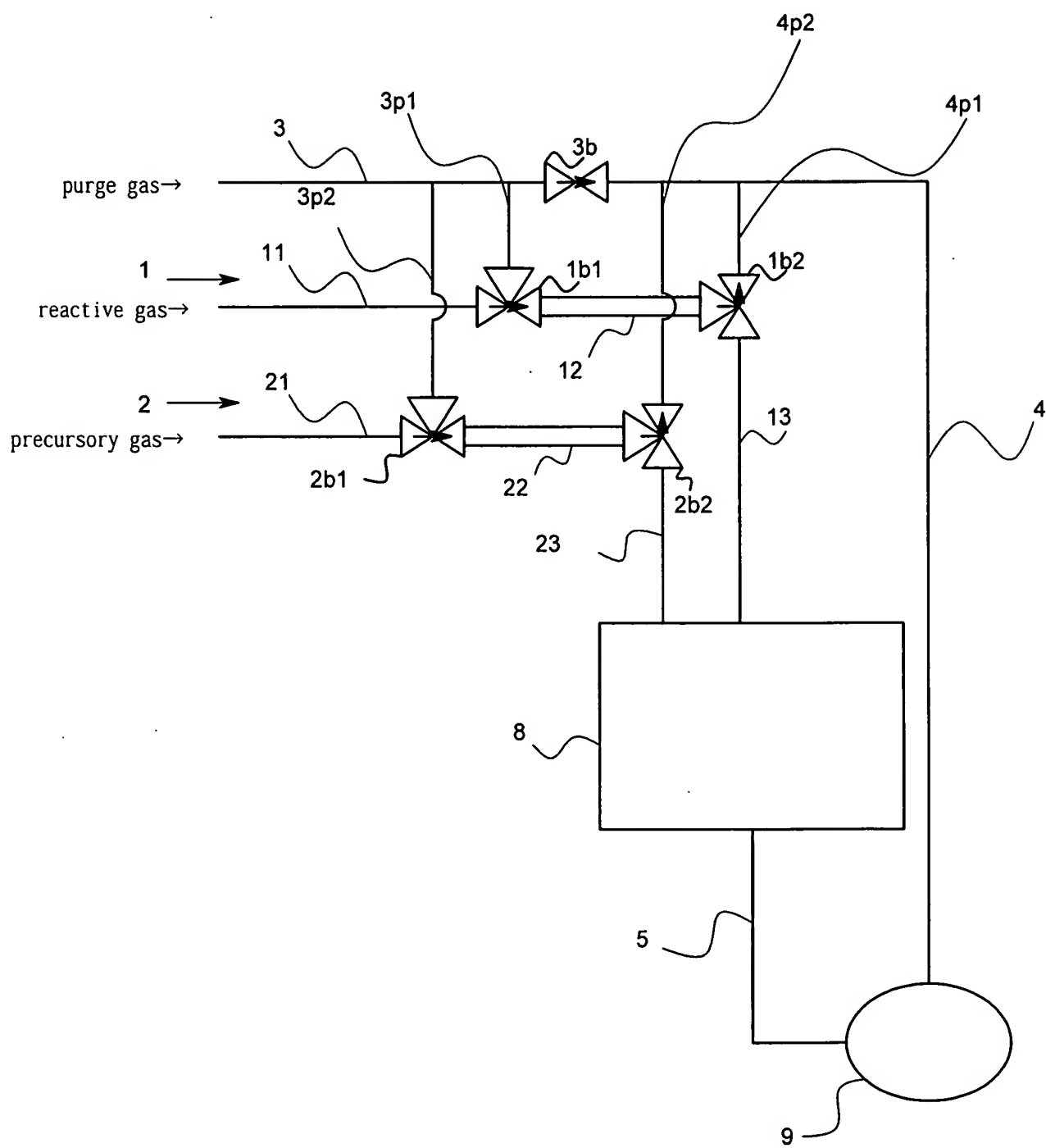


FIG.2

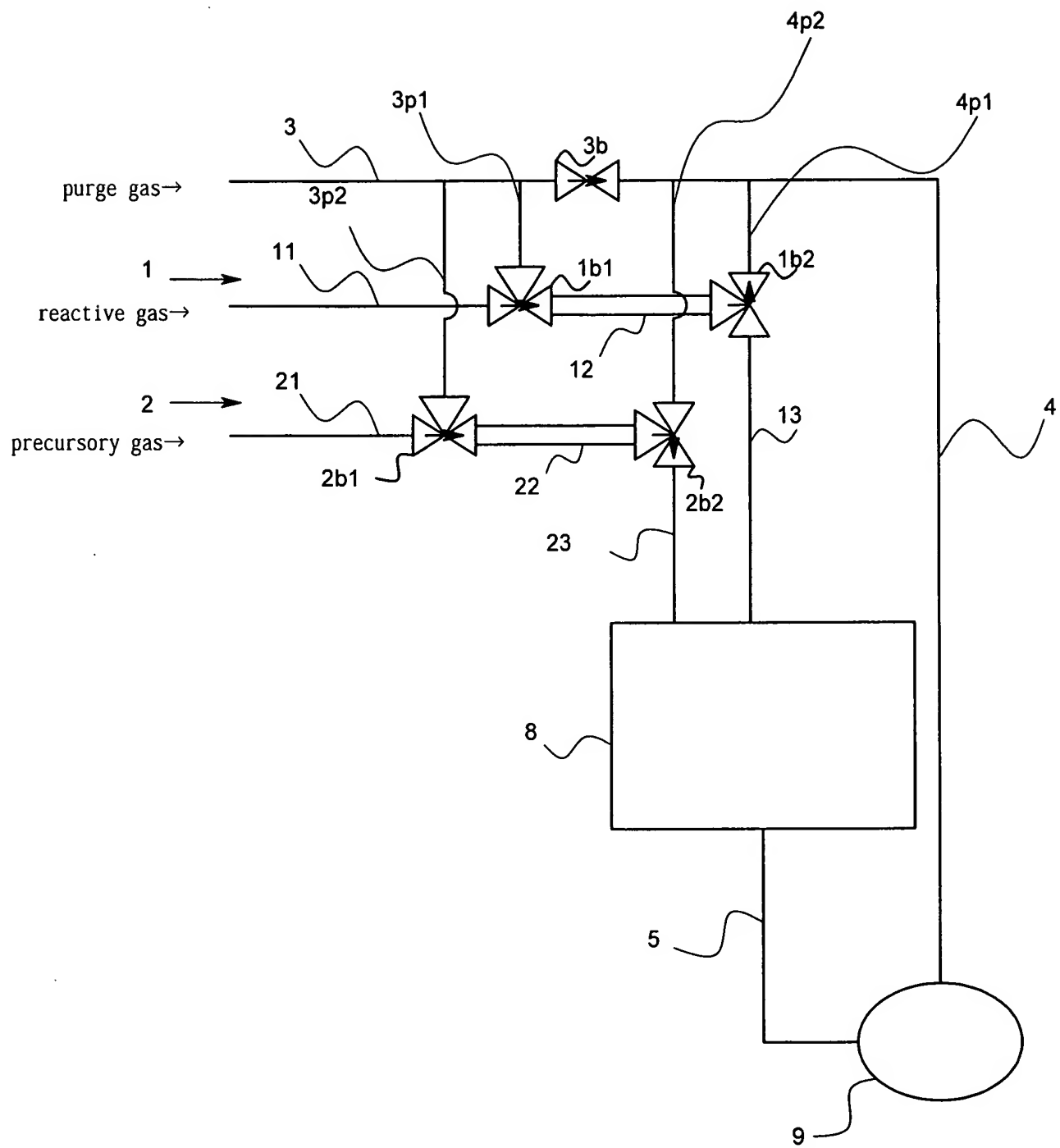


FIG.3

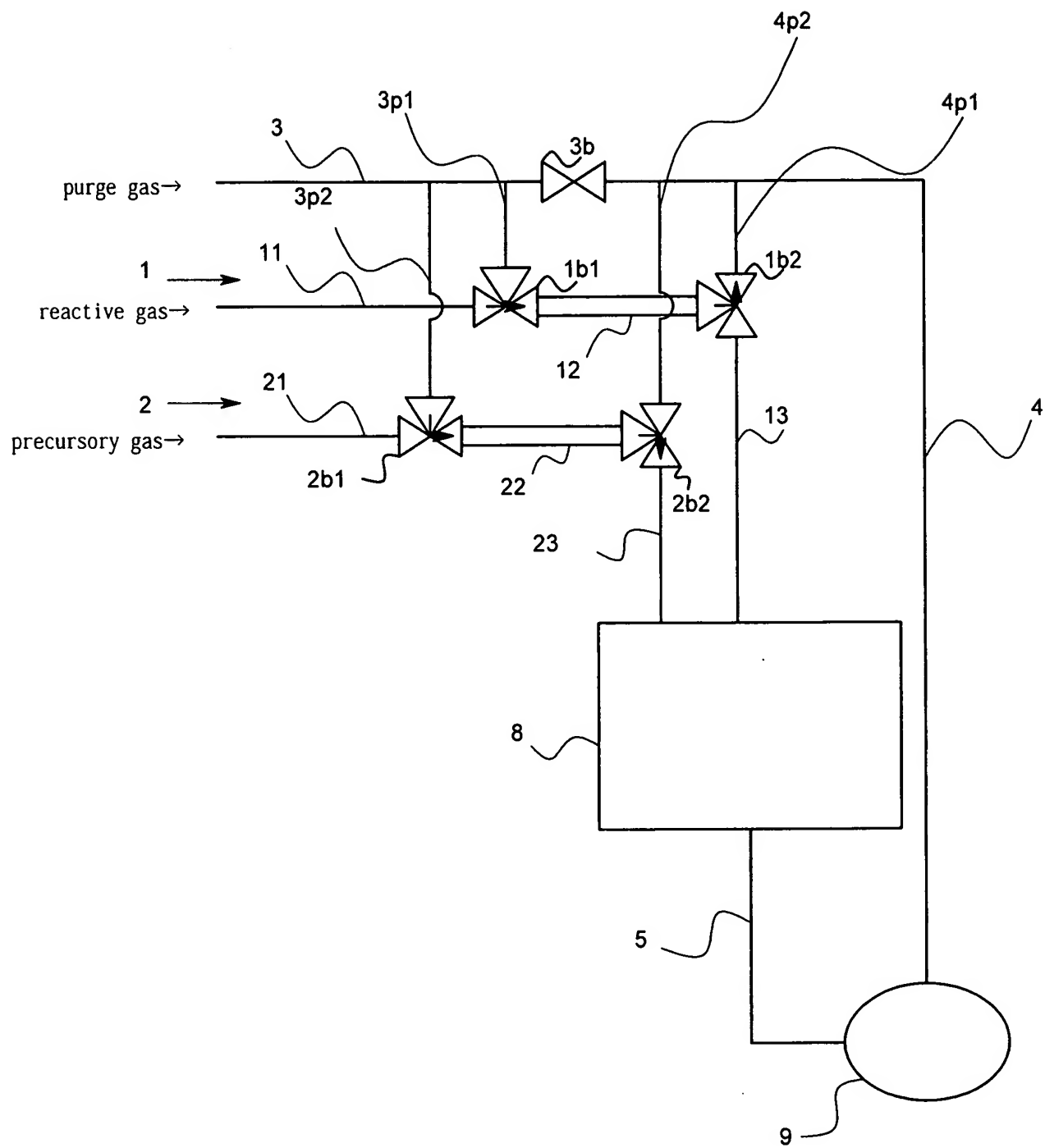


FIG.4

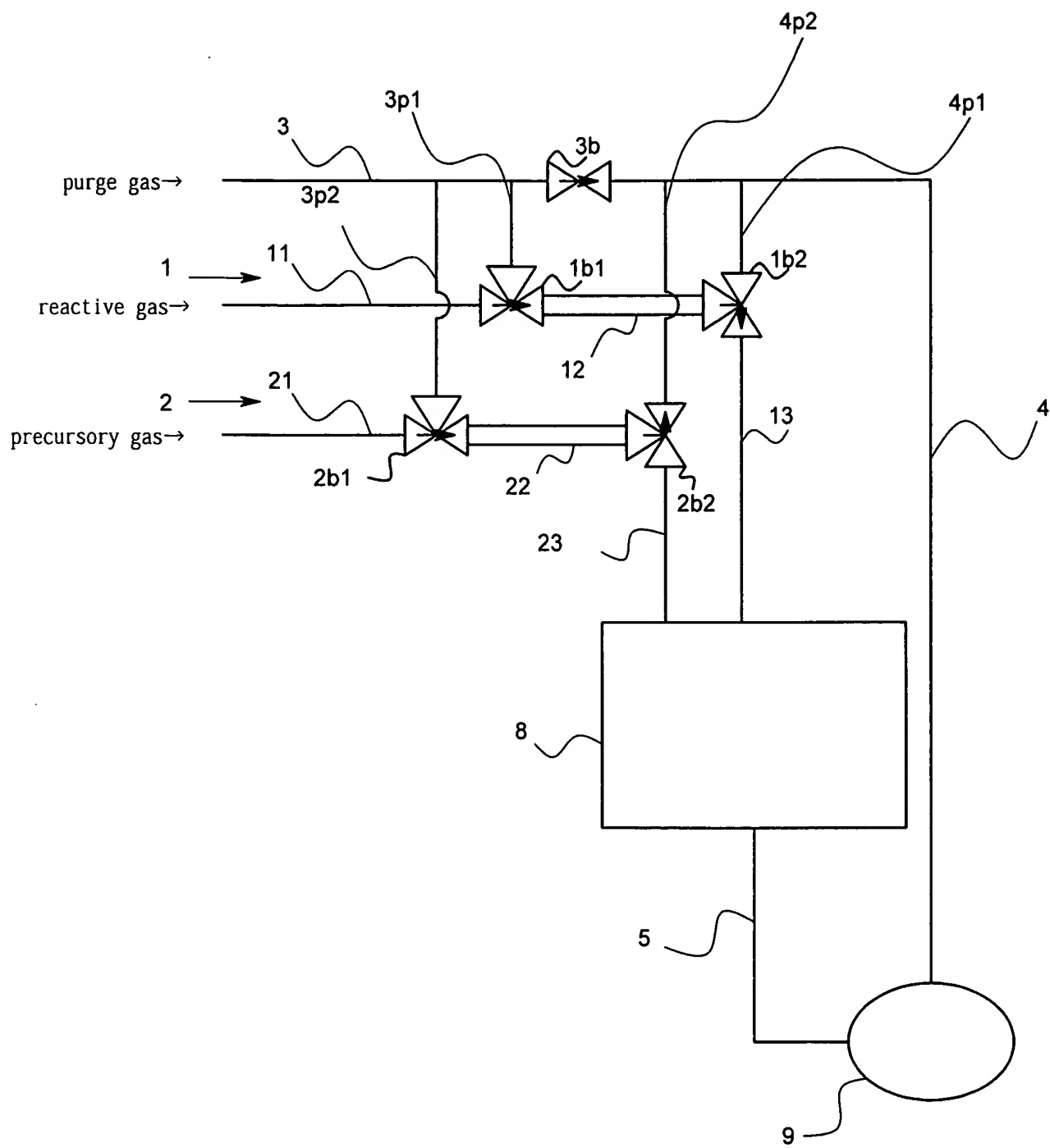


FIG.5

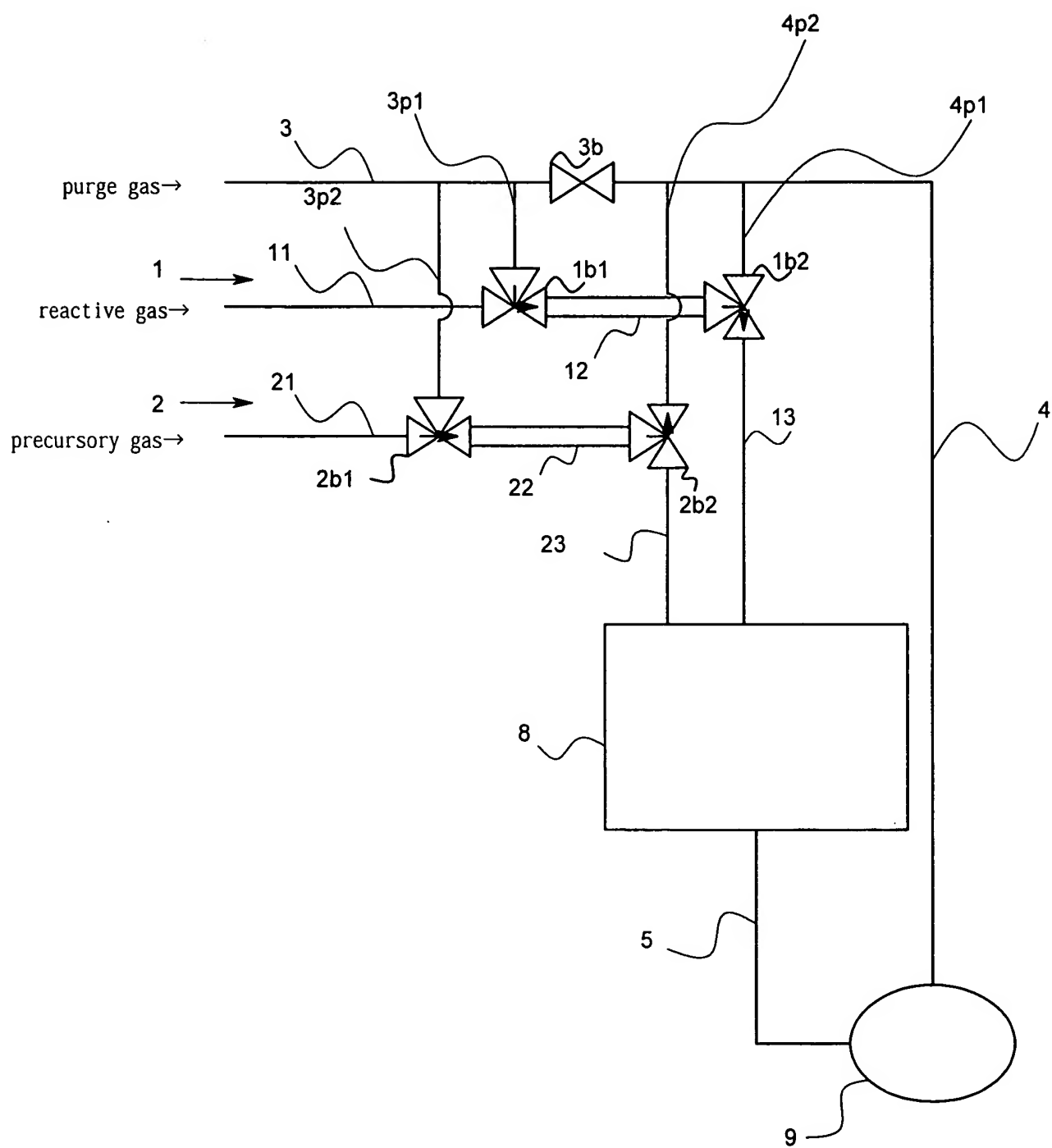


FIG.6

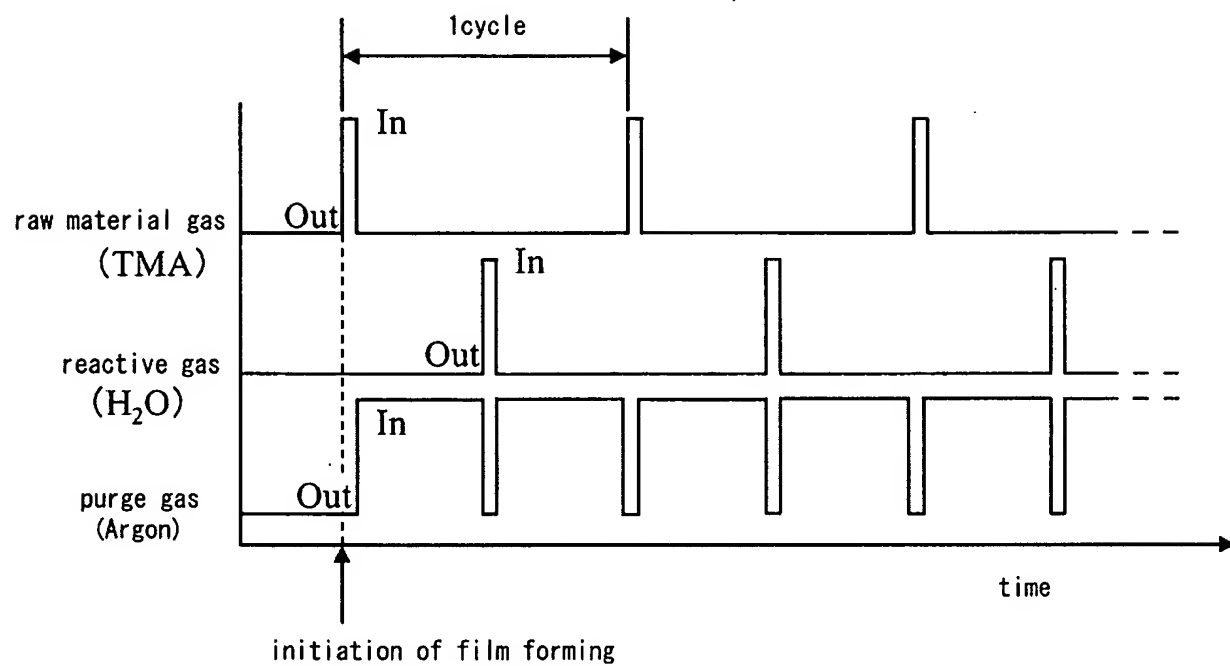


FIG.7

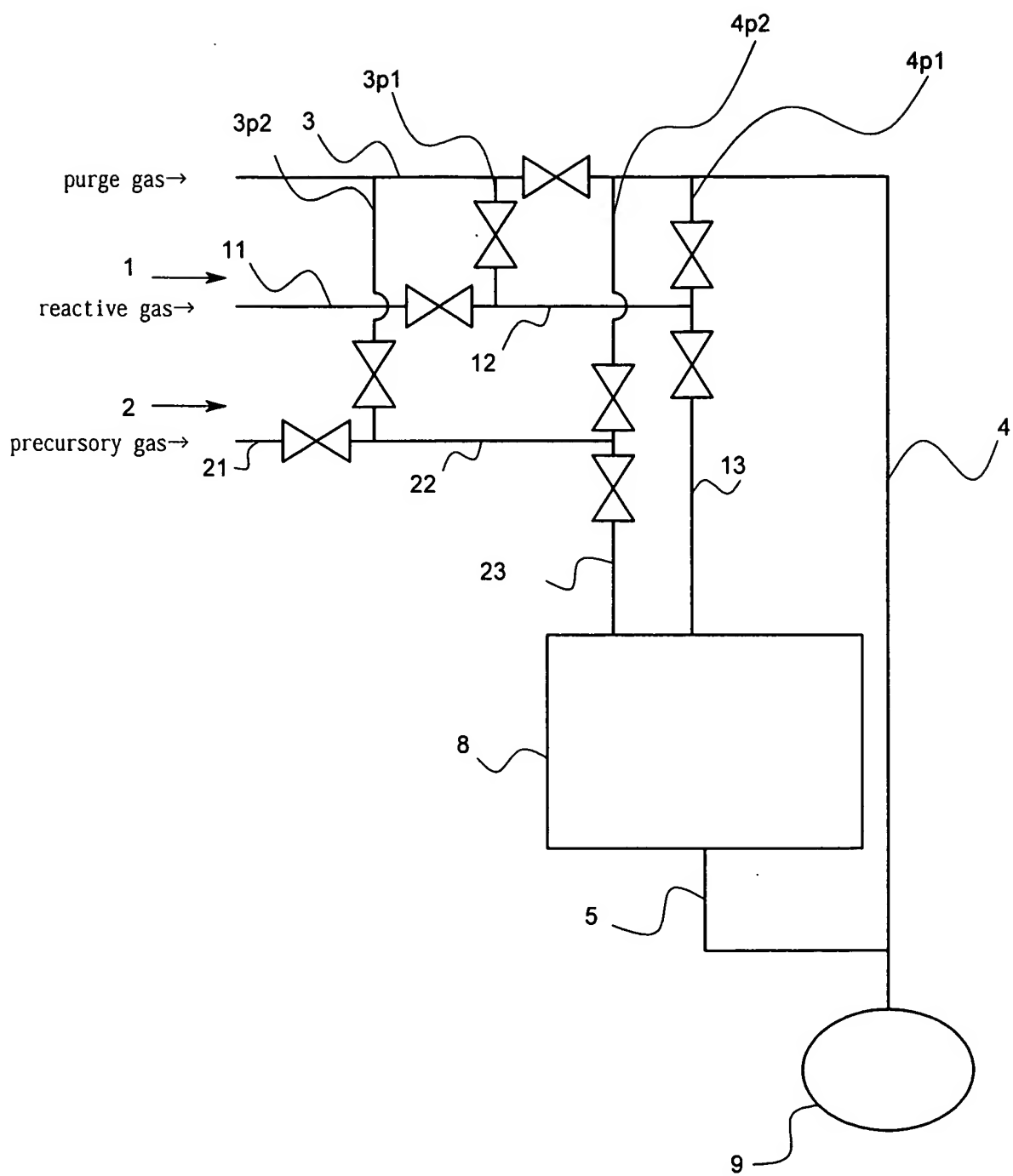


FIG.8



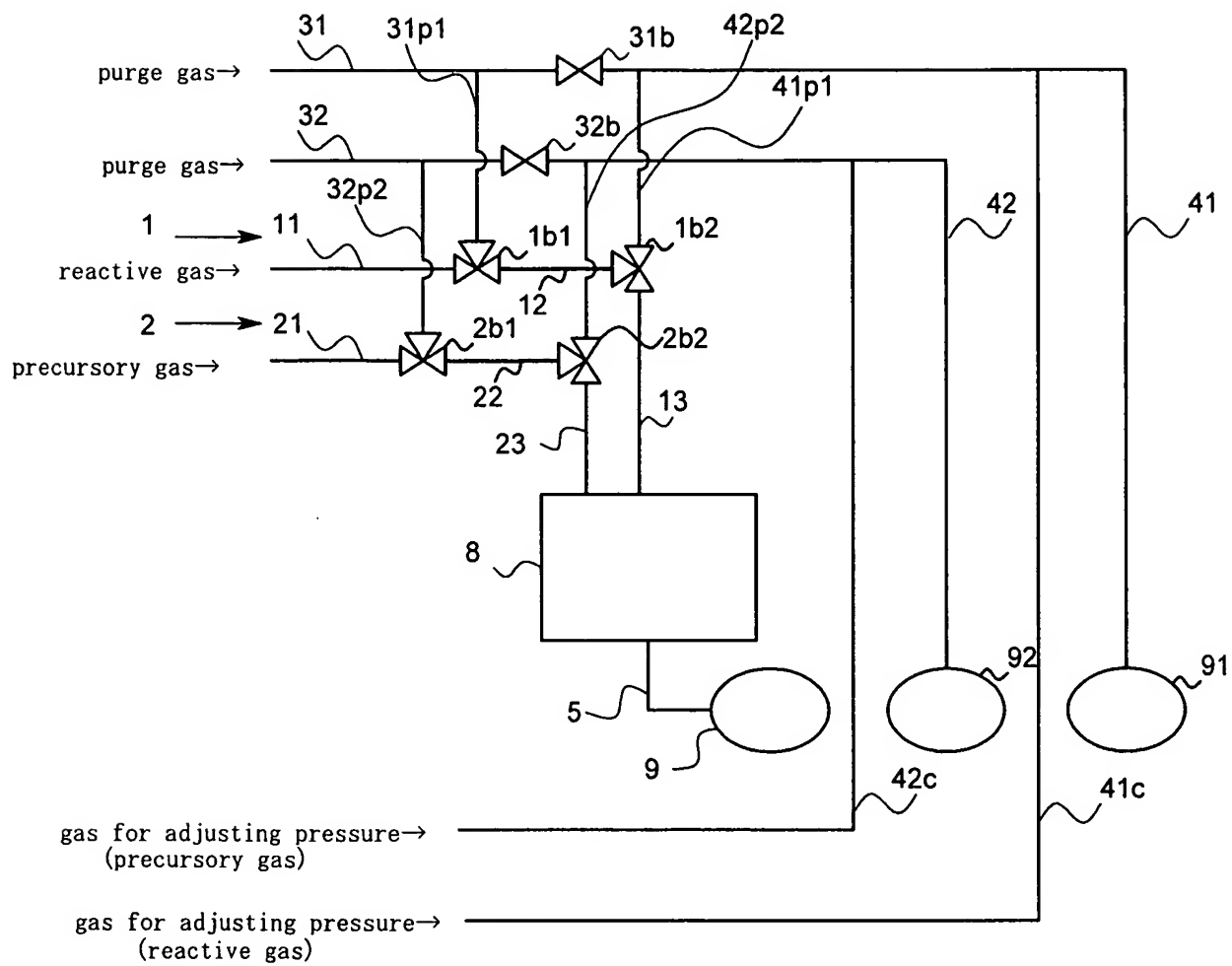


FIG.9

relationship between TMA gas concentration and purge time  
(pressure dependence in coating chamber)

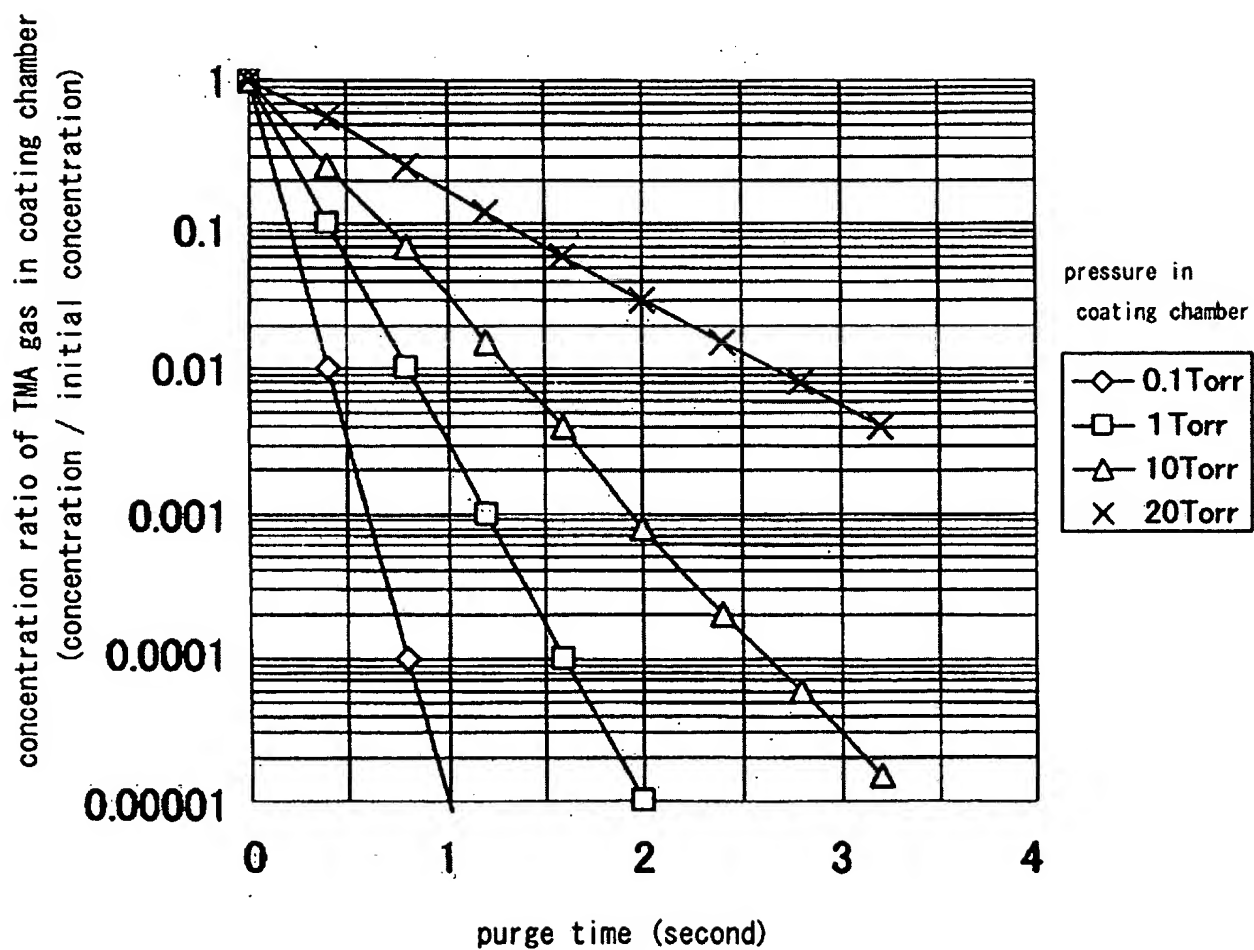


FIG.10

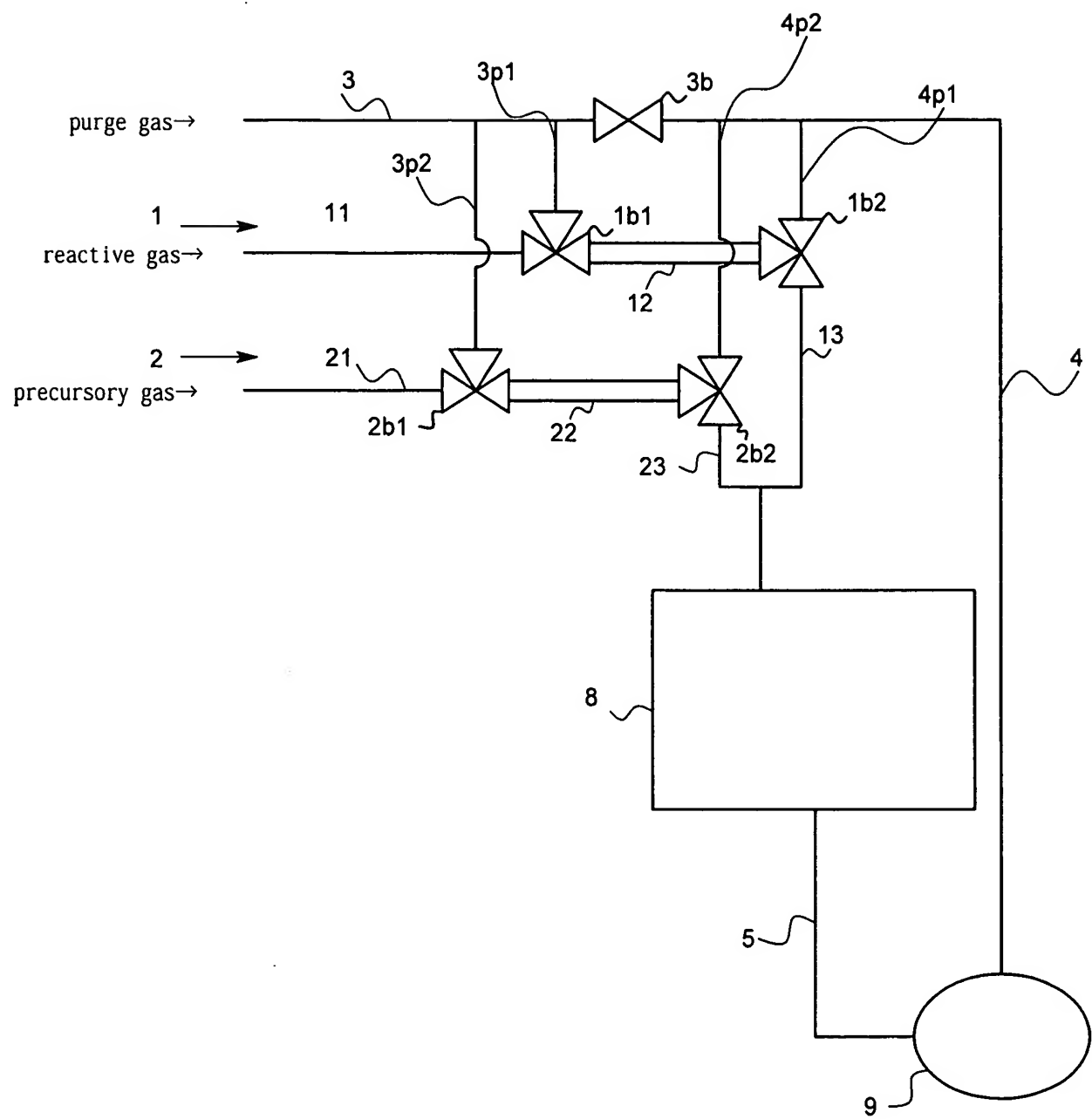


FIG.11

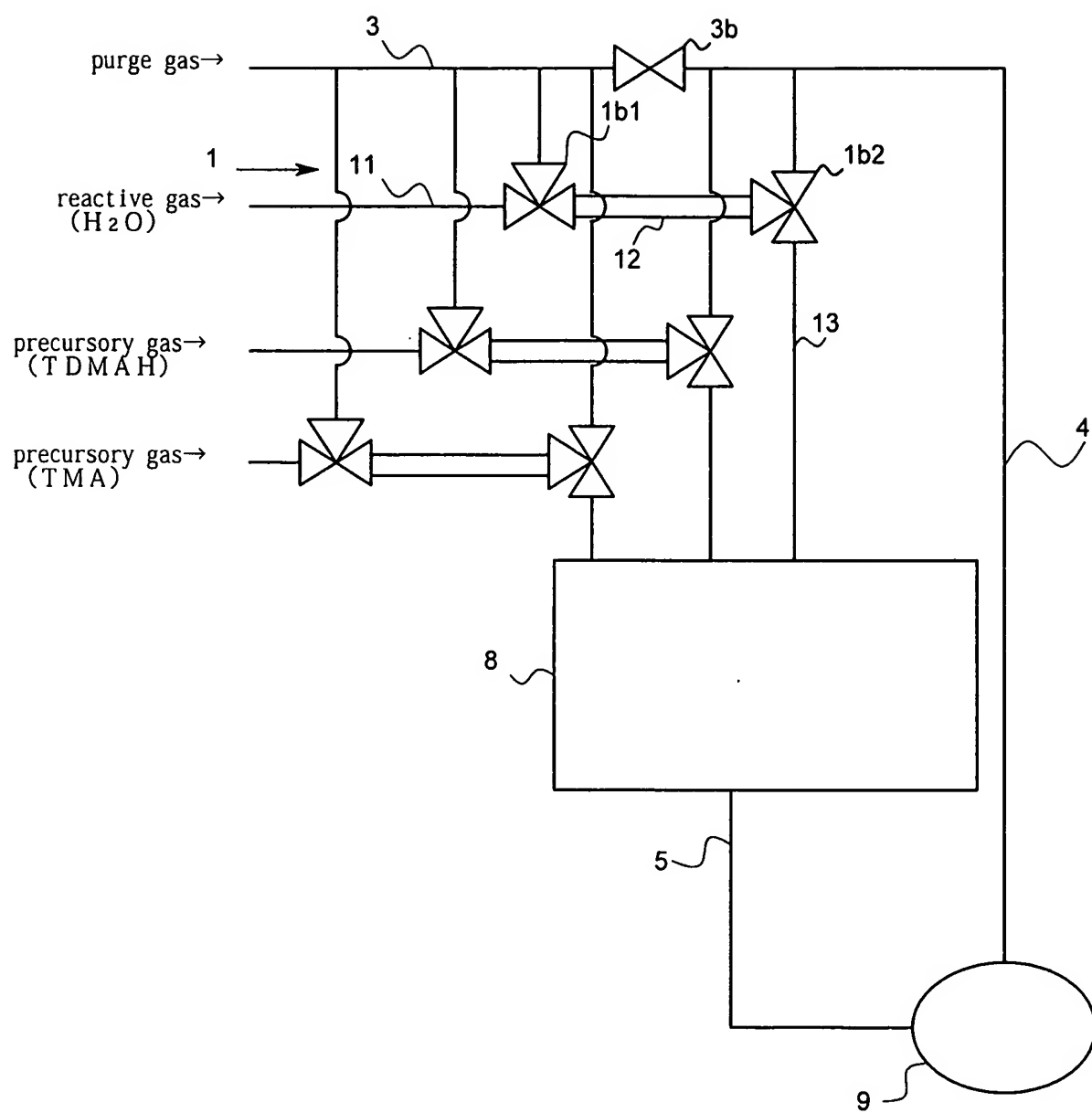


FIG.12

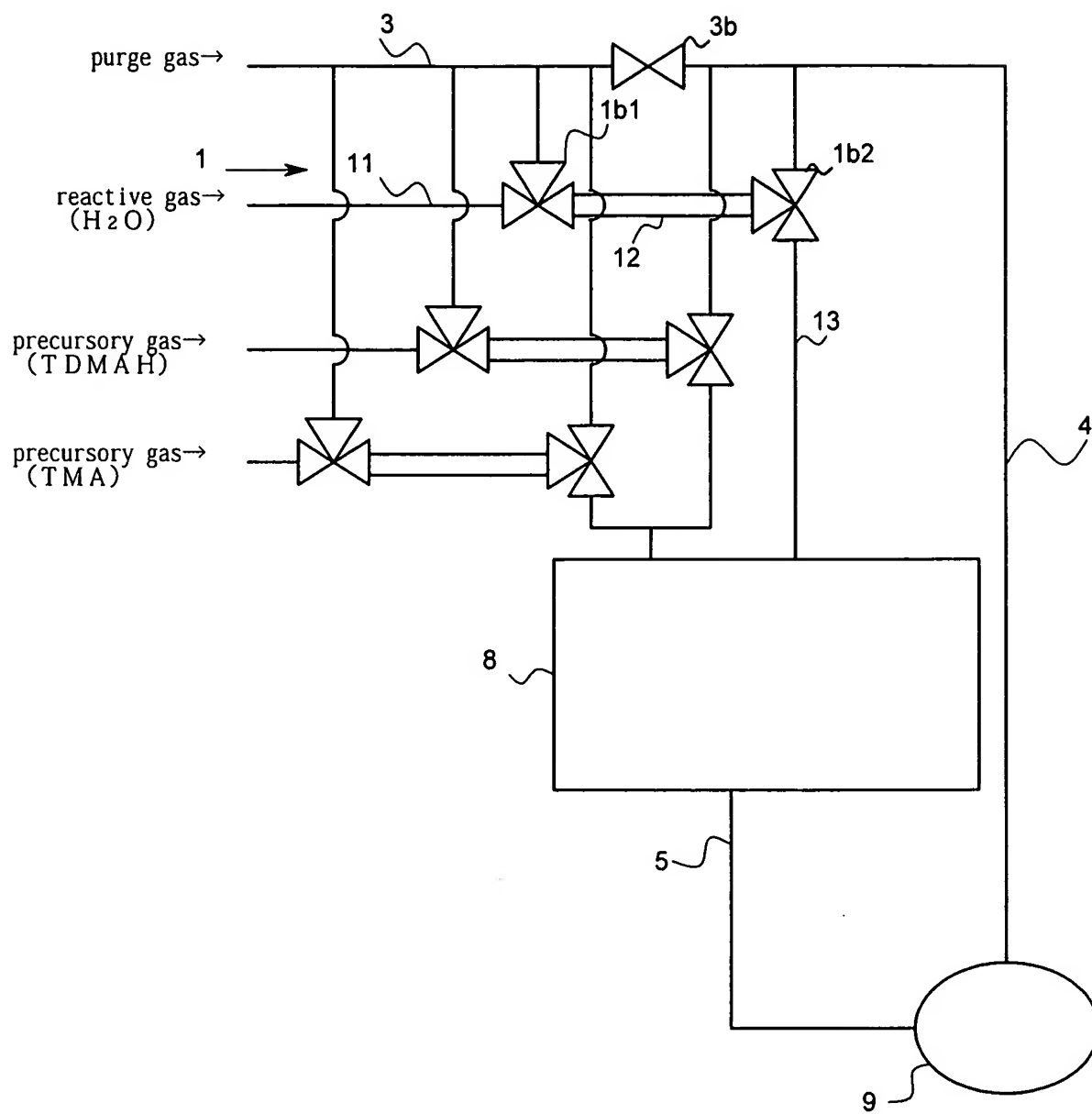


FIG.13

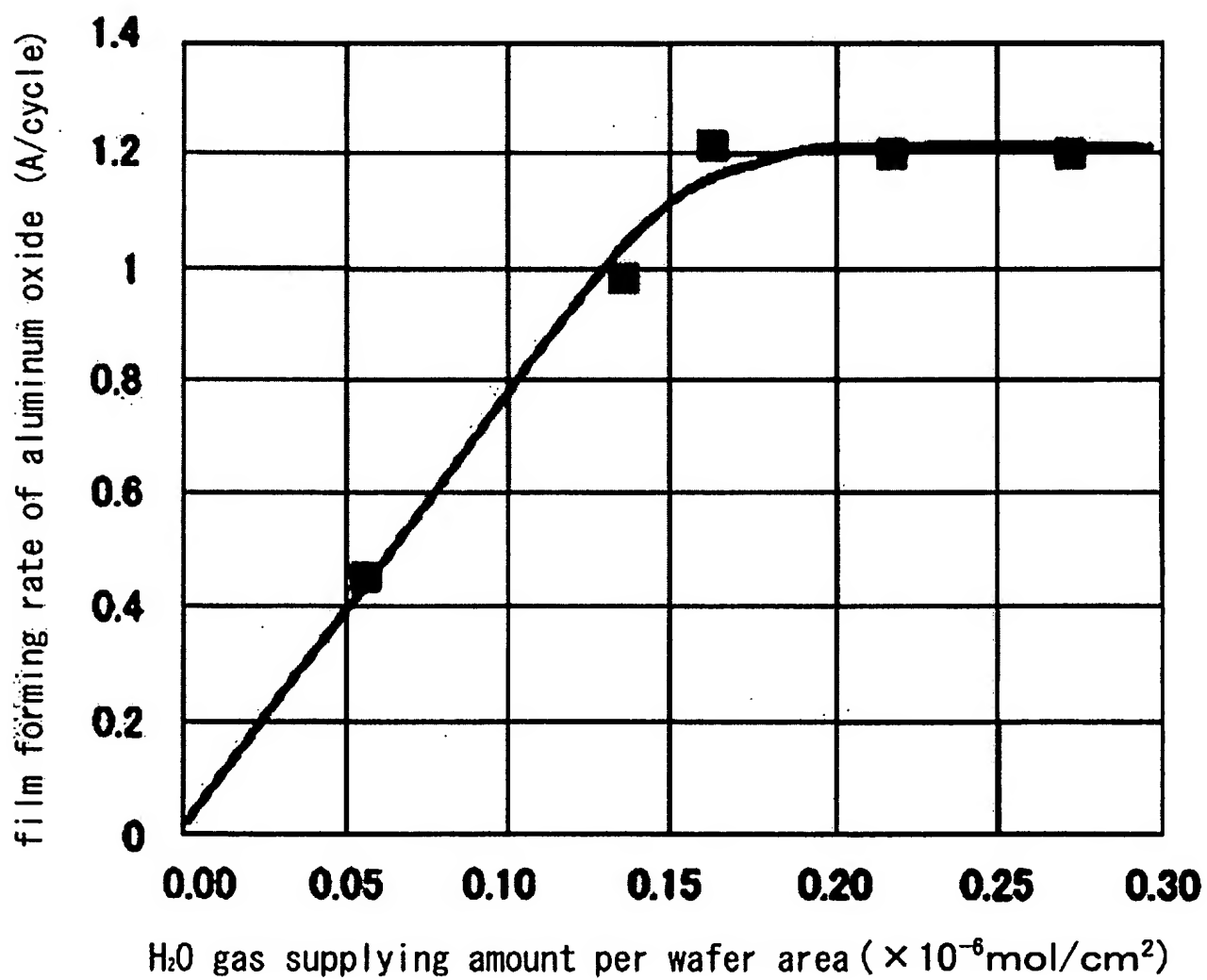


FIG.14

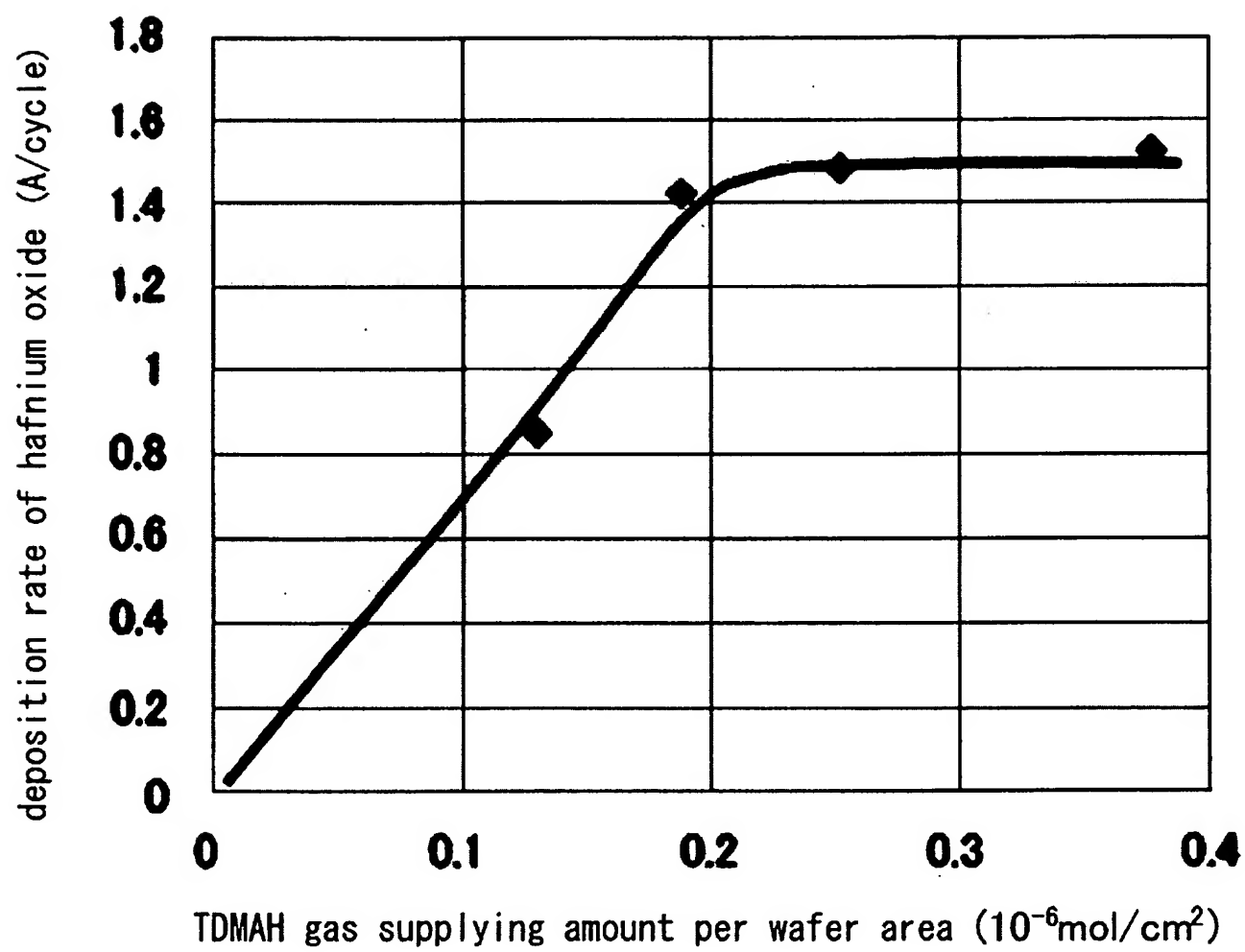


FIG.15

	Number of particles of 0.1~5 $\mu$ m diameter	Number of particles of 0.2~5 $\mu$ m diameter
Gas supplying line inside diameter 3.1mm	21	9
Gas supplying line inside diameter 6.3mm	29	11
Gas supplying line inside diameter 9.4mm	421	297

FIG.16



	Number of particles of 0.2~5 $\mu$ m diameter	Film thickness uniformity
Independent	11	$\pm 1.2$
Shared	850	$\pm 10.6$

FIG.17

<b>condition</b>	<b>conventional technique</b>	<b>this invention</b>
<b>Al<sub>2</sub>O<sub>3</sub></b> (40cycles)	<b>3320sec</b>	<b>160sec</b>
<b>HfO<sub>2</sub></b> (40cycles)	<b>3620sec</b>	<b>360sec</b>
<b>HfAlO<sub>x</sub></b> (40cycles)	<b>3545sec</b>	<b>360sec</b>

FIG.18